AMENDMENTS TO THE SPECIFICATION

Please substitute title to new title as follows:

METHOD AND SYSTEM FOR PROVIDING A DIGITAL SIGNAL REPRESENTING AN ANALOG SIGNAL

On page 1 after the title please insert the following:

CROSS REFERENCE TO RELATED APPLICATIONS

The present application is a national phase application under 35 U.S.C. 371 from international application PCT/IL2004/000739 filed on August 11 , 2004 which has priority from US provisional application 60/494,575 filed on August 13, 2003.

On page 9, please amend the paragraph [0042] at lines 21-28 as follows:

MIMO system 51 is characterized by the fact that, at least approximately, the relationship between one or more of MIMO system input signals (54 and ~~5857~~) to MIMO system analog output signals 55 can be described by a model. Moreover, the model of MIMO system 51 is characterized by the fact that it cannot be easily separated into independent stages. Moreover, the model of MIMO system 51 is characterized by the fact that it cannot be broken into separate independent stages which processes one sample each time, without using memory from previous operations. ~~The model of MIMO system 51~~

On page 9-10, please amend paragraph [0043] between line 21, page 9 and line 2, page 10 as follows:

Alternatively, MIMO system 51 is characterized by the fact that the relationship between one or more of MIMO system input signals (54 and ~~5857~~) to MIMO system analog output signals 55 can be described by a model having practical accurate identification algorithm. Analog output signals 55 of MIMO system 51 are analog signals that are used for monitoring the state of MIMO system 51 and therefore referred to hereinafter as analog monitoring outputs 55.

On page 10, please amend paragraph [0044] at lines 21-28 as follows:

It is to be understood the model describing the MIMO system can have other equivalent or similar formulations without affecting the generalization of the present invention. Moreover, the model describing the MIMO system is not limited to the

relationship between one or more of MIMO system input signals (54 and ~~5758~~) to MIMO system analog output signals 55, and may include other parameters as needed.

On page 11, please amend paragraph [0056] at lines 22-26 as follows:

Due to MIMO system 51 that, at least approximately, having a model describing the relationship between one or more of MIMO system input signals (54 and ~~5857~~) to MIMO system analog output signals 55, the digital representation of ~~the~~ discrete correction signals 57 combined with the model of MIMO system 51 featuring useful information describing the at least one analog input signal 54.

On page 14, please amend paragraph [0072] at lines 14-20 as follows:

It is to be understood that without ~~loosing~~losing generality, the model of sampler 50 can be the inverse model describing the relationships between digital representation of the discrete correction signals 57 to one or more of MIMO system input signals (54 and 58), or alternatively, a model describing the relationships between one or more of MIMO system input signals (54 and 58) to digital representation of the discrete correction signals 57. In the last case, there is a need to inverse the model in order to reconstruct digital output signal 59.

On page 15, please amend paragraph [0076] at lines 4-7 as follows:

In an alternative exemplary embodiment, only a partial reconstruction is needed. For example, when only the sign of ~~the at least one~~ analog input signal 54 is required, it is enough to partially reconstruct analog input signal 54 by applying a simpler and less complex method featuring preservation of the sign information.

On page 18, please amend paragraph [0089] at lines 2-16 as follows:

Referring to FIG. 4 compared with FIG. 1, MIMO system 51 and control unit 52 are implemented in two stages (73 and 74) sampler configuration, generally noted 75, wherein an analog signal is passed through ~~a series of~~ stages 73 and 74. It is to be understood that FIG. 4 ~~is just a schematic diagram~~ illustrate~~sing~~ schematically a two stage~~s~~ configuration of a multi-stage sampler in accordance with the present invention. The multi-stage sampler in accordance with the present invention ~~can be easily~~ is scaled ~~able~~ through duplications of ~~its~~ stages 73 and/or 74, as is well known in the art of electronic hardware design. MIMO system 51 is implemented in FIG. 4

by MIMO systems 67 and 70. Control unit 52 is implemented at FIG. 4 by controllers 68 and 71. Analog monitoring outputs 55 are outputs 63 and 64. Discrete correction signals 58 are discrete correction signals 65 and 66. Digital representation of the discrete correction signals 57, are digital representation of the discrete correction signals 78 and 79. It is to be understood that all the disclosed method hereinafter only represents the main and important parts of the method for multi-stage sampling analog signals and providing digital representation thereof. Hereinafter disclosed method is preferably executed in parallel hardware design.

On page 22, please amend paragraph [0115] at lines 9-14 as follows:

It is to be understood that without ~~loosing~~losing generality, the model of sampler 75 can be the inverse model describing the relationships between digital representation of the discrete correction signals (78,79) to analog input signal 54, or alternatively, a model describing the relationships between analog input signal 54 to digital representation of the discrete correction signals (78,79). In the last case, there is a need to inverse the model in order to reconstruct digital output signal 59.

On page 28, please amend paragraph [0142] at lines 25-30 as follows:

It is to be understood that FIG. 7 is ~~just a schematic diagram, illustrates~~ schematically~~ing~~ a parallel multi-stage sampler including two multi-stage samplers 75A and 75B, each one includes two stages 73 and 74. The parallel multi-stage sampler in accordance with the present invention can be ~~easily~~ scaledable through duplications of its multi-stage samplers 75A and/or 75B or duplications of ~~the~~ stages 73 and/or 74 within each multi-stage sampler, ~~or both of them~~, as is well known in the art of electronic hardware design.

Please append the abstract amended as follows to the specification:

ABSTRACT

A method ~~and a corresponding~~ for providing a digital output signal (59)~~sampling at least one~~ representing an analog input signal (54) in a system (50) including an analog circuit (51) and a control unit (52), ~~and providing digital representation thereof (59)~~ ~~Disclosed an a~~Analog circuit (51) ~~,~~ preferably featur~~inges~~ high bandwidth, high gain, and low current consumption. ~~that~~Analog circuit (51) is preferably implemented ~~by~~with low accuracy components. ~~control unit (52).a nalog circuit is integrated with The a~~ ~~The c~~Control unit (52) ~~is~~ keeps~~ing~~ error outputs (55) of ~~the system~~ analog circuit (51) at a minimal value so that ~~the total effect of the~~control unit (52) ~~is~~ cancels~~ing~~ ~~the effect of the~~analog input signal~~s~~(54) by outputting discrete value signals (58) in a feedback loop as input (58) to analog circuit (51). ~~By knowing the effect of the control unit, theat least oneanalog input signals (54) can be approximate~~ A DSP (53) of system (50) is previously trained using known analog signals and a model relating inputs (54,58) to error outputs (55) of analog circuit (51) is previously known. ~~The control unit is using discrete value signals (58).~~ During operation, a ~~D~~digital representation (57) of these discrete value signals (58) ~~(57)~~is ~~feed~~fed to a DSP (53) that ~~is~~ reconstruct~~sing the~~ analog input signal (54) by knowing from the prior training the effect of ~~th~~control unit (52) and the model of ~~the sampler~~ analog circuit (51).